

=> b reg

FILE=REGISTRY ENTERED AT 14:22:21 ON 13 JAN 2005
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STRUCTURE FILE UPDATES: 11 JAN 2005 HIGHEST RN 811782-89-5
DICTIONARY FILE UPDATES: 11 JAN 2005 HIGHEST RN 811782-89-5

TSCA INFORMATION NOW CURRENT THROUGH MAY 21, 2004

Please note that search-term pricing does apply when
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Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more
information enter HELP PROP at an arrow prompt in the file or refer
to the file summary sheet on the web at:
<http://www.cas.org/ONLINE/DBSS/registryss.html>

=> d que stat l15

L13 STR

O—C—C—SO2—C—SO2—C—C—O
8 1 2 3 4 5 6 7 9

NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 9

STEREO ATTRIBUTES: NONE

L15 76 SEA FILE=REGISTRY SSS FUL L13

100.0% PROCESSED 277 ITERATIONS
SEARCH TIME: 00.00.01

76 ANSWERS

=> d que stat l18

L16 STR

C=C—SO2—C—SO2—C=C
1 2 3 4 5 6 7

NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 7

STEREO ATTRIBUTES: NONE

L18 109 SEA FILE=REGISTRY SSS FUL L16

100.0% PROCESSED 337 ITERATIONS
SEARCH TIME: 00.00.01

109 ANSWERS

=> b casre

FILE 'CASREACT' ENTERED AT 14:22:39 ON 13 JAN 2005
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FILE CONTENT:1840 - 9 Jan 2005 VOL 142 ISS 2

 *
 * CASREACT now has more than 8 million reactions *
 *

Some CASREACT records are derived from the ZIC/VINITI database (1974-1991) provided by InfoChem, INPI data prior to 1986, and Biotransformations database compiled under the direction of Professor Dr. Klaus Kieslich.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d que stat L34
 L32 STR

RRT

PRO

O—C—C—SO2—C—SO2—C—C—O
 8 1 2 3 4 5 6 7 9

C=C—SO2—C—SO2—C=C
 10 11 12 13 14 15 16

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 16

STEREO ATTRIBUTES: NONE

L34 0 SEA FILE=CASREACT_SSS_FUL_L32 (0 REACTIONS)

100.0% DONE 0 VERIFIED 0 HIT RXNS
 SEARCH TIME: 00.00.01

0-DOCS

=> d his

(FILE 'HOME' ENTERED AT 13:48:15 ON 13 JAN 2005)

FILE 'HCAPLUS' ENTERED AT 13:48:28 ON 13 JAN 2005

L1 118 E3,E42-43
 E WRIGHT C/AU
 L2 13 E3,E32-35
 E WRIGHT CHARL/AU
 E SEIFERT J/AU
 L3 144 E3
 L4 14 E13-14
 E GODLESKI S/AU
 L5 59 E3-8
 E VANDEWALLE M/AU

Search done by Noble Jarrell

L6 139 E3
 E SULFONE/CT
 E SULFONES/CT
 E E3+ALL
 L7 40525 SULFONES+NT/CT
 L8 0 L1-6 AND L7

FILE 'REGISTRY' ENTERED AT 13:52:20 ON 13 JAN 2005

L9 STR
 L10 2 L9
 L11 STR L9
 L12 1 L11
 L13 STR L11
 L14 5 L13
 L15 76 L13 FULL
 SAVE TEM NWA0223F0/A L15
 L16 STR
 L17 5 L16
 L18 109 L16 FULL
 SAVE TEM L18 NWA0223F1/A

FILE 'HCAPLUS' ENTERED AT 14:12:50 ON 13 JAN 2005

L19 71 L15
 L20 34 L15 (L) RACT+NT/RL
 L21 169 L18
 L22 13 L18 (L) PREP+NT/RL
 L23 29697 (EASTMAN OR KODAK)/CS,PA
 L24 10 L19-20 AND L21-22
 L25 0 L24 AND L1-6
 L26 0 L1-2 AND L3
 L27 QUE PY<=2003 OR AY<=2003 OR PRY<=2003 OR PD<20031113 OR AD<2003
 L28 1167 L7 (L) VINYL
 L29 179 L28 (L) PREP+NT/RL
 L30 1 L19-20 AND L28-29
 L31 10 L24 NOT L30

FILE 'CASREACT' ENTERED AT 14:20:18 ON 13 JAN 2005

L32 STR
 L33 0 L32
 L34 0 L32-FUL

=> b hcap

FILE 'HCAPLUS' ENTERED AT 14:23:15 ON 13 JAN 2005

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FILE COVERS 1907 - 13 Jan 2005 VOL 142 ISS 3
 FILE LAST UPDATED: 12 Jan 2005 (20050112/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=>-d-all.hitstr l31 tot

Search done by Noble Jarrell

L31 ANSWER 1 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2000:683555 HCAPLUS
 DN 134:208287
 ED Entered STN: 29 Sep 2000
 TI New water soluble polysaccharide crosslinkers: Synthesis, viscometric studies about the crosslinking reaction and characterization of crosslinked products
 AU Heublein, B.; Kuhne, G.; Heinze, U.; Heinze, T.; Klemm, D.; Nechwatal, A.; Nicolai, M.; Mieck, K. -P.
 CS Institute of Organic Chemistry and Macromolecular Chemistry, Friedrich Schiller University of Jena, Jena, D-07743, Germany
 SO Lenzinger Berichte (2000), 79, 45-49
 CODEN: LEBEAW; ISSN: 0024-0907
 PB Lenzing AG
 DT Journal
 LA English
 CC 35-8 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 40, 43
 AB The synthesis of new crosslinking agents based on divinyl sulfone is described. The crosslinking efficiency was determined by rheol. measurements starting from aqueous solns. of hydroxyethyl cellulose. Moreover, the new agents can be used to reduce the fibrillability of Lyocell fibers as a result of the crosslinking reaction.
 ST divinyl sulfone deriv crosslinking agent prepn; cellulose fiber crosslinking divinyl sulfone deriv
 IT Rayon, properties
 RL: PRP (Properties)
 (reconstituted, crosslinked with divinyl sulfone derivative; synthesis of divinyl sulfone derivative crosslinking agent, viscometric studies of crosslinking reaction and characterization of crosslinked cellulose fiber)
 IT Abrasion
 Crosslinking
 Crosslinking agents
 Elongation, mechanical
 Mechanical loss
 Tensile strength
 Viscoelasticity
 (synthesis of divinyl sulfone derivative crosslinking agent, viscometric studies of crosslinking reaction and characterization of crosslinked cellulose fiber)
 IT 3278-22-6P 39690-70-5P 55818-44-5P 56510-29-3P
 206865-86-3P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (crosslinking agent; synthesis of divinyl sulfone derivative crosslinking agent, viscometric studies of crosslinking reaction and characterization of crosslinked cellulose fiber)
 IT 5244-34-8P 5416-14-8P 16079-04-2P 35243-88-0P 41105-15-1P
 44860-68-6P 259664-81-8P 259664-82-9P 259664-83-0P
 328553-44-2P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (intermediate; synthesis of divinyl sulfone derivative crosslinking agent, viscometric studies of crosslinking reaction and characterization of crosslinked cellulose fiber)
 IT 60-24-2, 2-Mercaptoethanol 107-07-3, 2-Chloroethanol, reactions
 629-03-8, 1,6-Dibromohexane 17534-15-5, Benzene-1,2-dithiol
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (starting material; synthesis of divinyl sulfone derivative crosslinking agent, viscometric studies of crosslinking reaction and characterization of crosslinked cellulose fiber)
 IT 328555-04-0P 328555-05-1P 328555-06-2P 328555-07-3P
 328555-08-4P 328555-09-5P 328555-10-8P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP

(Preparation)

(synthesis of divinyl sulfone derivative crosslinking agent, viscometric studies of crosslinking reaction and characterization of crosslinked cellulose fiber)

RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Anbergen, U; Polymer 1990, V31, P1854 HCAPLUS
- (2) Anon; US 2524399 HCAPLUS
- (3) Anon; US 2753388
- (4) Brederick, K; Melliand Textilber 1997, V78, P703 HCAPLUS
- (5) Couley, M; Lenzinger Ber 1996, V75, P51
- (6) Faberwerke Hoechst; No Publication Given
- (7) Koch, P; Melliand Textilber 1997, V78, P575
- (8) Lutringer, J; Textilveredlung 1990, V25, P311
- (9) Mieck, K; Chem Fibres Int 1995, V45, P44
- (10) Nicolai, M; Angew Makromol Chem 1998, V256, P21 HCAPLUS
- (11) Nicolai, M; Angew Makromol Chem in press
- (12) Nicolai, M; Text Res J 1996, V66, P191
- (13) Oppermann, W; Das Papier 1995, V49, P765 HCAPLUS
- (14) Rowland, S; J Appl Polym Sci 1990, V14, P1854
- (15) Sternberg, U; Computer-Simulation von Molekulspektren COSMOS
- (16) Valk, G; Melliand Textilber 1970, V51(6), P714 HCAPLUS

IT 3278-22-6P

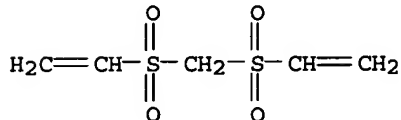
RL: RCT (Reactant); SPN (Synthetic preparation); PREP

(Preparation); RACT (Reactant or reagent)

(crosslinking agent; synthesis of divinyl sulfone derivative crosslinking agent, viscometric studies of crosslinking reaction and characterization of crosslinked cellulose fiber)

RN 3278-22-6 HCAPLUS

CN Ethene, 1,1'-[methylenebis(sulfonyl)]bis- (9CI) (CA INDEX NAME)



IT 259664-81-8P

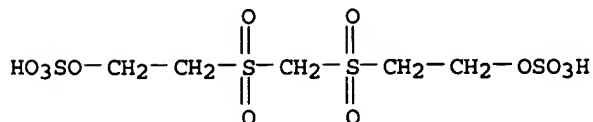
RL: RCT (Reactant); SPN (Synthetic preparation); PREP

(Preparation); RACT (Reactant or reagent)

(intermediate; synthesis of divinyl sulfone derivative crosslinking agent, viscometric studies of crosslinking reaction and characterization of crosslinked cellulose fiber)

RN 259664-81-8 HCAPLUS

CN Ethanol, 2,2'-[methylenebis(sulfonyl)]bis-, bis(hydrogen sulfate), disodium salt (9CI) (CA INDEX NAME)



● 2 Na

IT 328555-06-2P

RL: PRP (Properties); SPN (Synthetic preparation); PREP

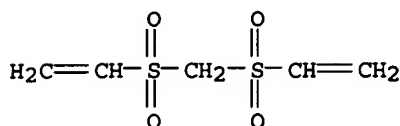
(Preparation)

(synthesis of divinyl sulfone derivative crosslinking agent, viscometric studies of crosslinking reaction and characterization of crosslinked

cellulose fiber)
 RN 328555-06-2 HCAPLUS
 CN Cellulose, 2-hydroxyethyl ether, polymer with 1,1'-
 [methylenebis(sulfonyl)]bis[ethene] (9CI) (CA INDEX NAME)

CM 1

CRN 3278-22-6
 CMF C5 H8 O4 S2



CM 2

CRN 9004-62-0
 CMF C2 H6 O2 . x Unspecified

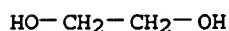
CM 3

CRN 9004-34-6
 CMF Unspecified
 CCI PMS, MAN

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

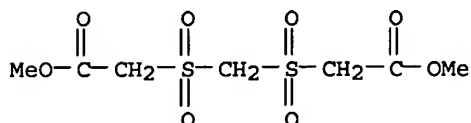
CM 4

CRN 107-21-1
 CMF C2 H6 O2

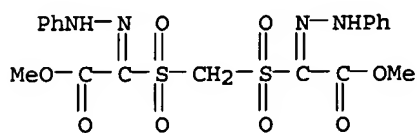


L31 ANSWER 2 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 1996:109257 HCAPLUS
 DN 124:260528
 ED Entered STN: 21 Feb 1996
 TI Reaction of methylenebis(sulfonylacetic acid) derivatives with
 aryldiazonium salts and aromatic aldehydes
 AU Bazavova, I. M.; Esipenko, A. N.; Neplyuev, V. M.; Lozinskii, M. O.
 CS Inst. Org. Khim., Nats. Akad. Nauk Ukr., Kiev, Ukraine
 SO Zhurnal Organicheskoi Khimii (1995), 31(4), 565-9
 CODEN: ZORKAE; ISSN: 0514-7492
 PB Nauka
 DT Journal
 LA Russian
 CC 25-20 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
 AB Reaction of $\text{CH}_2(\text{SO}_2\text{CH}_2\text{X})_2$ (I; X = CN, COOMe) with 4- $\text{RC}_6\text{H}_4\text{N}_2^+$ (R = H, Me, MeO, Cl) gave $\text{CH}_2(\text{SO}_2\text{CX}:\text{NNHC}_6\text{H}_4\text{R}-4)_2$ and, in the case of X = CN, 1,5-diaryl-3-cyanoformazans. I (X = CN) reacted with R_1CHO (R_1 = aryl) to give $\text{CH}_2[\text{SO}_2\text{C}(\text{CN}):\text{CHR}_1]_2$.
 ST methylenebissulfonylacetic acid derivs reaction benzenediazonium benzaldehyde
 IT Condensation reaction
 (of methylenebis(sulfonylacetic acid) derivs. with benzenediazonium salts and with aromatic aldehydes)
 IT 74705-20-7, Acetic acid, 2,2'-[methylenebis(sulfonyl)]bis-,

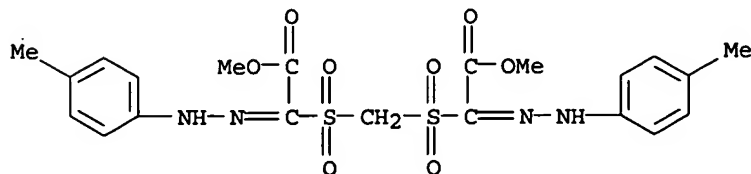
- dimethyl ester 166956-14-5, Acetamide, 2,2'-[methylenebis(sulfonyl)]bis-
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (condensation with benzenediazonium salts)
- IT 166956-15-6, Acetonitrile, 2,2'-(methylenebissulfonyl)bis-
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (condensation with benzenediazonium salts and with aromatic aldehydes)
- IT 100-52-7D, Benzaldehyde, derivs. 2684-02-8, Benzenediazonium
 17333-79-8, 4-Methoxybenzenediazonium 17333-85-6, 4-
 Chlorobenzenediazonium 57573-52-1, 4-Methylbenzenediazonium
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (condensation with methylenebis(sulfonylacetic acid) derivs.)
- IT 7014-08-6P 7014-14-4P 7071-45-6P 33556-21-7P 175401-75-9P
 175401-76-0P 175401-77-1P 175401-78-2P 175401-79-3P
 175401-80-6P 175401-81-7P 175401-82-8P
 175401-83-9DP, derivs.
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of)
- IT 74705-20-7, Acetic acid, 2,2'-[methylenebis(sulfonyl)]bis-,
 dimethyl ester
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (condensation with benzenediazonium salts)
- RN 74705-20-7 HCAPLUS
- CN Acetic acid, 2,2'-[methylenebis(sulfonyl)]bis-, dimethyl ester (9CI) (CA
 INDEX NAME)



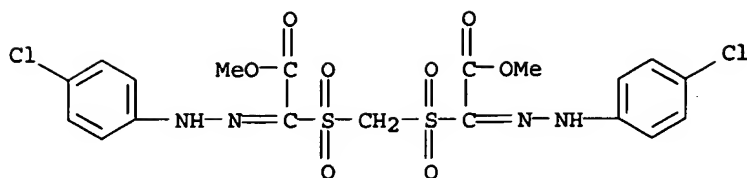
- IT 175401-79-3P 175401-80-6P 175401-81-7P
 175401-83-9DP, derivs.
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of)
- RN 175401-79-3 HCAPLUS
- CN Acetic acid, 2,2'-[methylenebis(sulfonyl)]bis[2-(phenylhydrazono)-,
 dimethyl ester (9CI) (CA INDEX NAME)]



- RN 175401-80-6 HCAPLUS
- CN Acetic acid, 2,2'-[methylenebis(sulfonyl)]bis[2-[(4-
 methylphenyl)hydrazono]-, dimethyl ester (9CI) (CA INDEX NAME)]

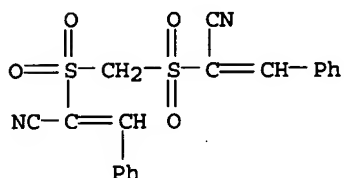


- RN 175401-81-7 HCAPLUS
- CN Acetic acid, 2,2'-[methylenebis(sulfonyl)]bis[2-[(4-
 chlorophenyl)hydrazono]-, dimethyl ester (9CI) (CA INDEX NAME)]



RN 175401-83-9 HCAPLUS

CN 2-Propenenitrile, 2,2'-[methylenebis(sulfonyl)]bis[3-phenyl- (9CI) (CA INDEX NAME)



L31 ANSWER 3 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1995:204738 HCAPLUS

DN 123:142963

ED Entered STN: 19 Nov 1994

TI Functional derivatives of methylenebis(sulfonylacetic acid)

AU Bazavova, I. M.; Esipenko, A. N.; Neptyuev, V. M.; Lozinskii, M. O.

CS Inst. Org. Khim., Akad. Nauk Ukr., Kiev, Ukraine

SO Zhurnal Organicheskoi Khimii (1994), 30(2), 201-6

CODEN: ZORKAE; ISSN: 0514-7492

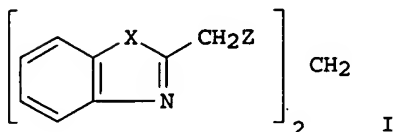
PB Nauka

DT Journal

LA Russian

CC 21-2 (General Organic Chemistry)

GI



AB $\text{CH}_2(\text{ZCH}_2\text{CO}_2\text{H})_2$ ($\text{Z} = \text{S}, \text{SO}_2$) reacted with $\text{o-HXC}_6\text{H}_4\text{NH}_2$ ($\text{X} = \text{NH}, \text{S}$) to give 56-89% heterocycles I. $\text{CH}_2(\text{SO}_2\text{CH}_2\text{COR}_1)_2$ (II; $\text{R}_1 = \text{OMe}$) reacted with N_2H_4 to give 72% II ($\text{R}_1 = \text{NHNH}_2$) and then with PhNCS to give 80% II ($\text{R}_1 = \text{NHNHCSNHPh}$), and with NH_3 to give 90% II ($\text{R}_1 = \text{NH}_2$) and then with POCl_3 to give 93% $\text{CH}_2(\text{SO}_2\text{CH}_2\text{CN})_2$ (III). III reacted with $\text{CH}(\text{OEt})_3$ gave 38% $[\text{EtOCH}:\text{C}(\text{CN})\text{SO}_2]_2\text{CH}_2$ (IV) or 71% $[\text{EtOCH}:\text{C}(\text{CN})\text{SO}_2]_2\text{C}:\text{CHOEt}$ (V), depending on the conditions. IV and V reacted with primary amines to give 6- corresponding bis- and 7 corresponding tris(enamines), while both IV and V yielded the bisenamine derived from IV with piperidine. IR data were given for all products.

ST methylenebissulfonylacetic acid deriv; sulfonylacetic acid methylenebis deriv

IT 166956-12-3P 166956-14-5P 166956-15-6P 166956-16-7P
166956-17-8P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation)
 ; PREP (Preparation); RACT (Reactant or reagent)
 (synthesis of functional derivs. of methylenebis(sulfonylacetic acid))

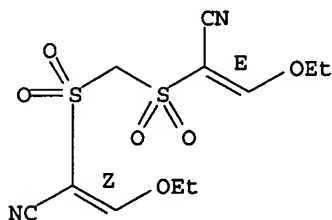
IT 5970-18-3P 166956-10-1P 166956-13-4P 166956-18-9P
 166956-19-0P 166956-20-3P 166956-21-4P
 166956-22-5P 166956-23-6P 166956-24-7P
 166956-25-8P 166956-26-9P 166956-27-0P
 166956-28-1P 166956-29-2P 166956-30-5P
 166956-31-6P 372090-91-0P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP
 (Preparation)
 (synthesis of functional derivs. of methylenebis(sulfonylacetic acid))

IT 62-53-3, Benzenamine, reactions 75-64-9, tert-Butylamine, reactions
 95-54-5, o-Phenylenediamine, reactions 96-50-4, 2-Thiazolamine
 100-46-9, Benzylamine, reactions 103-72-0 104-94-9, p-Anisidine
 108-91-8, Cyclohexanamine, reactions 110-89-4, Piperidine, reactions
 122-51-0, Ethyl orthoformate 137-07-5, o-Aminothiophenol 504-29-0,
 2-Pyridinamine 2068-24-8 13952-84-6, sec-Butylamine 62634-18-8
 74705-20-7
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (synthesis of functional derivs. of methylenebis(sulfonylacetic acid))

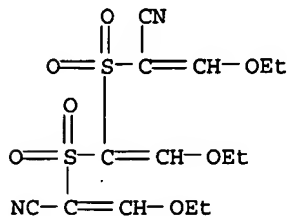
IT 166956-16-7P 166956-17-8P
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation)
 ; PREP (Preparation); RACT (Reactant or reagent)
 (synthesis of functional derivs. of methylenebis(sulfonylacetic acid))

RN 166956-16-7 HCAPLUS
 CN 2-Propenenitrile, 2,2'-[methylenebis(sulfonyl)]bis[3-ethoxy-, (E,Z)- (9CI)
 (CA INDEX NAME)

Double bond geometry as shown.

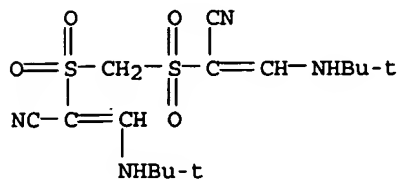


RN 166956-17-8 HCAPLUS
 CN 2-Propenenitrile, 2,2'-[(ethoxyethenylidene)bis(sulfonyl)]bis[3-ethoxy-
 (9CI) (CA INDEX NAME)

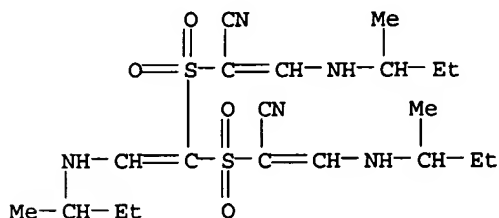


IT 166956-18-9P 166956-19-0P 166956-20-3P
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 166956-27-0P 166956-28-1P 166956-29-2P
 166956-30-5P 166956-31-6P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP
 (Preparation)
 (synthesis of functional derivs. of methylenebis(sulfonylacetic acid))

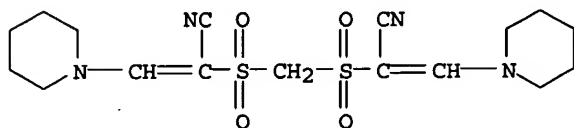
RN 166956-18-9 HCAPLUS
 CN 2-Propenenitrile, 2,2'-[methylenebis(sulfonyl)]bis[3-[(1,1-dimethylethyl)amino]- (9CI) (CA INDEX NAME)



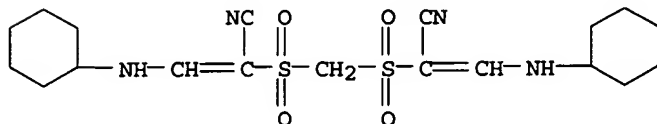
RN 166956-19-0 HCAPLUS
 CN 2-Propenenitrile, 2,2'-[[[(1-methylpropyl)amino]ethenylidene]bis(sulfonyl)]bis[3-[(1-methylpropyl)amino]- (9CI) (CA INDEX NAME)



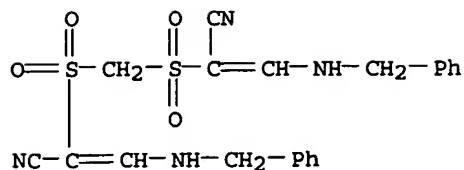
RN 166956-20-3 HCAPLUS
 CN 2-Propenenitrile, 2,2'-[methylenebis(sulfonyl)]bis[3-(1-piperidiny)- (9CI) (CA INDEX NAME)



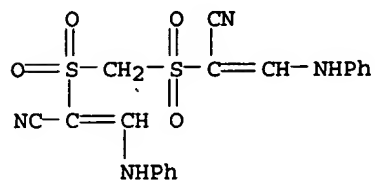
RN 166956-21-4 HCAPLUS
 CN 2-Propenenitrile, 2,2'-[methylenebis(sulfonyl)]bis[3-(cyclohexylamino)- (9CI) (CA INDEX NAME)



RN 166956-22-5 HCAPLUS
 CN 2-Propenenitrile, 2,2'-[methylenebis(sulfonyl)]bis[3-[(phenylmethyl)amino]- (9CI) (CA INDEX NAME)

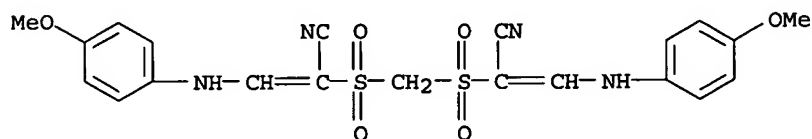


RN 166956-23-6 HCAPLUS

CN 2-Propenenitrile, 2,2'-[methylenebis(sulfonyl)]bis[3-(phenylamino)- (9CI)
(CA INDEX NAME)

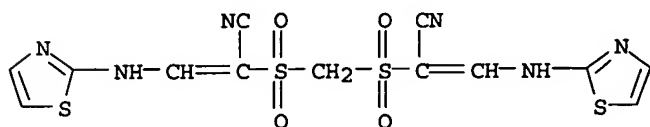
RN 166956-24-7 HCAPLUS

CN 2-Propenenitrile, 2,2'-[methylenebis(sulfonyl)]bis[3-[(4-methoxyphenyl)amino]- (9CI) (CA INDEX NAME)



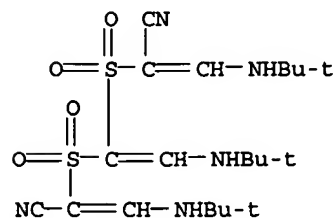
RN 166956-25-8 HCAPLUS

CN 2-Propenenitrile, 2,2'-[methylenebis(sulfonyl)]bis[3-(2-thiazolylamino)- (9CI) (CA INDEX NAME)



RN 166956-26-9 HCAPLUS

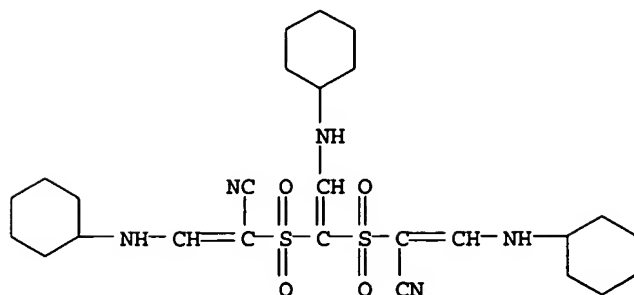
CN 2-Propenenitrile, 2,2'-[[[(1,1-dimethylethyl)amino]ethenylidene]bis(sulfonyl)]bis[3-[(1,1-dimethylethyl)amino]- (9CI) (CA INDEX NAME)



RN 166956-27-0 HCAPLUS

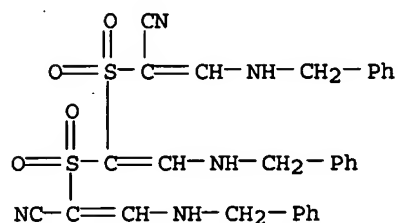
CN 2-Propenenitrile, 2,2'-[[[(cyclohexylamino)ethenylidene]bis(sulfonyl)]bis[3-

(cyclohexylamino)- (9CI) (CA INDEX NAME)



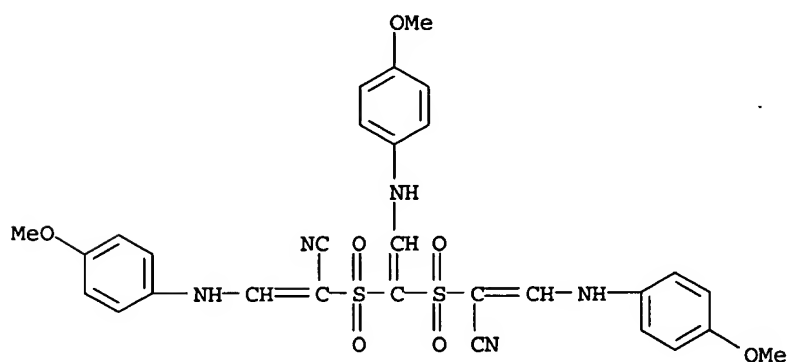
RN 166956-28-1 HCAPLUS

2-Propenenitrile, 2,2'-[[[(phenylmethyl)amino]ethenylidene]bis(sulfonyl)]b
is[3-[(phenylmethyl)amino]- (9CI) (CA INDEX NAME)



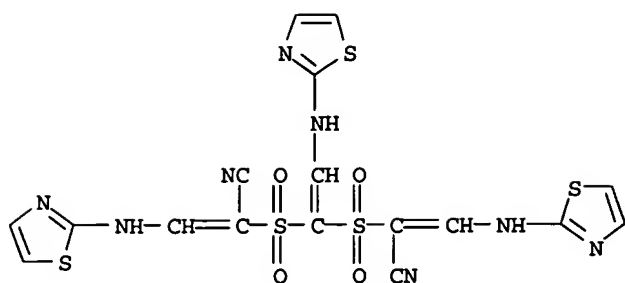
RN 166956-29-2 HCAPLUS

2-Propenenitrile, 2,2'-[[[(4-methoxyphenyl)amino]ethenylidene]bis(sulfonyl
)]bis[3-[(4-methoxyphenyl)amino]- (9CI) (CA INDEX NAME)



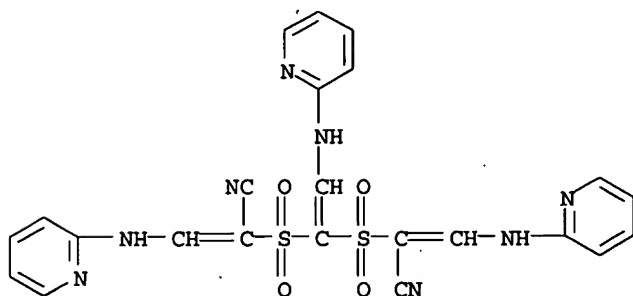
RN 166956-30-5 HCAPLUS

2-Propenenitrile, 2,2'-[[2-(thiazolylamino)ethenylidene]bis(sulfonyl)]bis[
3-(2-thiazolylamino)- (9CI) (CA INDEX NAME)



RN 166956-31-6 HCAPLUS

CN 2-Propenenitrile, 2,2'-[[[(2-pyridinylamino)ethenylidene]bis(sulfonyl)]]bis[3-(2-pyridinylamino)- (9CI) (CA INDEX NAME)]

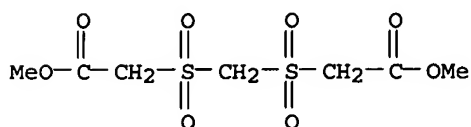


IT 74705-20-7

RL: RCT (Reactant); RACT (Reactant or reagent)
(synthesis of functional derivs. of methylenebis(sulfonylacetic acid))

RN 74705-20-7 HCAPLUS

CN Acetic acid, 2,2'-[methylenebis(sulfonyl)]bis-, dimethyl ester (9CI) (CA INDEX NAME)



L31 ANSWER 4 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1989:415247 HCAPLUS

DN 111:15247

ED Entered STN: 08 Jul 1989

TI Hardening of gelatin in color photographic materials

IN Okamura, Hisashi; Kawamoto, Hiroyuki; Kawasaki, Hiroshi

PA Fuji Photo Film Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 22 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G03C001-30

CC 74-2 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

FAN.CNT 1

PATENT NO.

KIND

DATE

APPLICATION NO.

DATE

Search done by Noble Jarrell

PI JP 63241539 A2 19881006 JP 1987-76586 19870330
 US 4897344 A 19900130 US 1988-175442 19880330
 PRAI JP 1987-76586 A 19870330

CLASS

PATENT NO. CLASS PATENT FAMILY CLASSIFICATION CODES

JP 63241539 ICM G03C001-30

OS CASREACT 111:15247; MARPAT 111:15247

AB At least 1 of the compds. represented by $(CH_2:CHSO_2)_2C(R)LA(SO_3-M^+)n$ [L = divalent organic moiety; R = H, univalent organic moiety; A = benzene ring which can be condensed with other rings; M⁺ = H ion, alkali metal ion, ammonium ion; and n = 1,2] is used to harden gelatin in photog. materials. The aforementioned water-soluble compds. give fast hardening of gelatin, and hence post-hardening can be prevented.

ST gelatin hardening photog material

IT Gelatins, uses and miscellaneous

RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (hardening of, in photog. materials)

IT Photographic hardening agents

(water-soluble, for color materials)

IT Photographic films

Photographic paper

(color, hardening of gelatins in)

IT 121064-00-4P 121064-01-5P

RL: SPN (Synthetic preparation); PREP (Preparation)

(preparation and use of, as gelatin hardening agent in color photog.
 material)

IT 121063-99-8P

RL: SPN (Synthetic preparation); PREP (Preparation)

(reaction and preparation of, gelatin hardening agent from)

IT 60-24-2, 2-Mercaptoethanol 104-53-0, 3-Phenylpropanal 124-63-0,
 Methanesulfonylchloride 10213-10-2, Sodium tungstate (Na₂WO₄·2H₂O)

RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction of, gelatin hardening agent from)

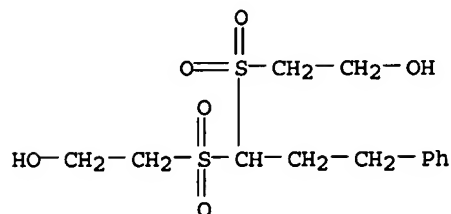
IT 121064-00-4P 121064-01-5P

RL: SPN (Synthetic preparation); PREP (Preparation)

(preparation and use of, as gelatin hardening agent in color photog.
 material)

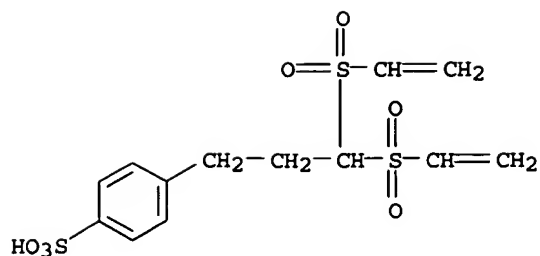
RN 121064-00-4 HCAPLUS

CN Ethanol, 2,2'-[(3-phenylpropylidene)bis(sulfonyl)]bis- (9CI) (CA INDEX
 NAME)



RN 121064-01-5 HCAPLUS

CN Benzenesulfonic acid, 4-[3,3-bis(ethenylsulfonyl)propyl]-, sodium salt
 (9CI) (CA INDEX NAME)



● Na

L31 ANSWER 5 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1983:98708 HCAPLUS

DN 98:98708

ED Entered STN: 12 May 1984

TI Hardening of hydrophilic colloids

AU Pollet, R.; Samijn, R.; Kok, P.; Van Veelen, G.

CS Agfa-Gevaert Naamloze Vennootschap, UK

SO Research Disclosure (1983), 225, 11-14 (No. 22507)

CODEN: RSDSBB; ISSN: 0374-4353

DT Journal; Patent

LA English

CC 74-2 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
RD 225007		19830110		

PI RD 225007 19830110

PRAI RD 1983-225007 19830110

AB A hardener for gelatin-Ag halide photog. layers comprises a monoallyl- or dialkyl-substituted bis(vinylsulfonyl)methane (CH₂:CHSO₂)₂CRR₁ (R = alkyl containing .gtoreq.1 ether function, or alkyl containing .gtoreq.1 OH group; R₁ = H, C₁-5 alkyl, or alkyl containing .gtoreq.1 ether function). Thus, a gelatin layer containing 1,1-bis(vinylsulfonyl)-3-methoxypropane 10 mmol/100 g gelatin was stored for 4 days at 20.degree. (relative humidity 60%), immersed 15 min in a color print developer containing Na hexametaphosphate 2, Na₂SO₃ 4, 2-amino-5-diethylaminotoluene HCl 3, Na₂CO₃ 20, KBr 2 g, and H₂O to 1 L (pH = 10.65) at 38.degree. and then subjected to an abrasion resistance test which indicated a high degree of hardening of the layer.

ST vinylsulfonylmethane deriv photog gelatin hardener

IT Photographic hardening agents

(alkyl- or dialkyl-substituted bis(vinylsulfonyl)methane derivs. as)

IT 84782-44-5 84782-45-6

RL: TEM (Technical or engineered material use); USES (Uses)
(photog. hardening agent)

IT 84782-46-7P 84782-47-8P 84782-49-0P 84782-50-3P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation); RACT (Reactant or reagent)
(preparation and reactions of)

IT 84782-48-9

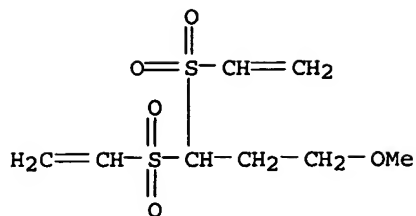
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with mercaptoethanol)

IT 84782-44-5 84782-45-6

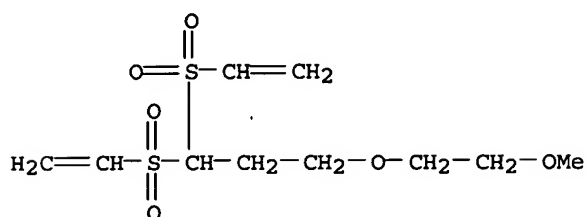
RL: TEM (Technical or engineered material use); USES (Uses)
(photog. hardening agent)

RN 84782-44-5 HCAPLUS

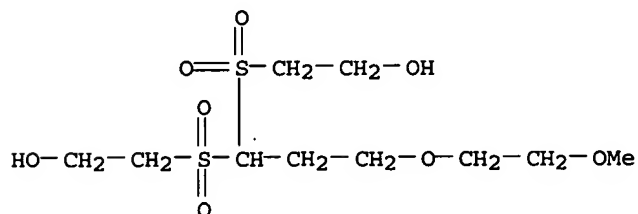
CN Propane, 1,1-bis(ethenylsulfonyl)-3-methoxy- (9CI) (CA INDEX NAME)



RN 84782-45-6 HCAPLUS
 CN Propane, 1,1-bis(ethenylsulfonyl)-3-(2-methoxyethoxy)- (9CI) (CA INDEX NAME)



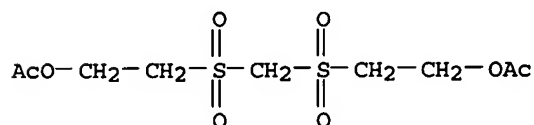
IT 84782-50-3P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent) (preparation and reactions of)
 RN 84782-50-3 HCAPLUS
 CN Ethanol, 2,2'-[[3-(2-methoxyethoxy)propylidene]bis(sulfonyl)]bis- (9CI) (CA INDEX NAME)



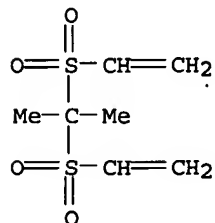
L31 ANSWER 6 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 1974:78976 HCAPLUS
 DN 80:78976
 ED Entered STN: 12 May 1984
 TI Effect of alkyl disulfones on production of the carcinogenic metabolite 2-acetylaminofluorene
 AU Pliss, G. B.; Gurkalo, V. K.; Petrov, A. S.
 CS N. N. Petrov Res. Inst. Oncol., Leningrad, USSR
 SO Voprosy Onkologii (1973), 19(11), 43-7
 CODEN: VOONAW; ISSN: 0507-3758
 DT Journal
 LA Russian
 CC 4-7 (Toxicology)
 AB When injected i.p. at doses corresponding to 1/20 LD50, acetylethoxy or hydroxyethyl derivs. of alkyl disulfones (e.g. methylenebis(sulfonylethyl acetate) [39227-09-3] and methylenebis(sulfinylethyl acetate) [51109-26-3]) decreased the urinary excretion of N-hydroxy-2-

acetylaminofluorene [53-95-2] in rats injected with 2-acetylaminofluorene [53-96-3] (100 mg/kg, i.p.). An increase in the number of methylene groups between the sulfonyl radicals decreased the inhibitory effects of the preps. on the formation of the 2-acetylaminofluorene metabolite. The acetylethoxy derivs. of alkyl disulfones caused a reversible inhibition of cytochrome P 450 [9035-51-2] and cytochrome b5 [9035-39-6] in the microsomal fraction of the rat liver.

- ST alkyl disulfone acetylaminofluorene metab; cytochrome liver alkyl disulfone; hydroxyacetylaminofluorene urine alkyl disulfone
- IT Molecular structure-biological activity relationship
(acetylaminofluorene metabolism-inhibiting, of alkyl disulfones)
- IT Liver, composition
(cytochromes of, alkyl disulfones effect on)
- IT Microsome
(cytochromes of, of liver, alkyl disulfones effect on)
- IT Urine
(hydroxyacetylaminofluorene of, alkyl disulfones effect on)
- IT 3088-17-3 7426-03-1 39227-09-3 41123-56-2
41123-65-3 41123-66-4 41123-67-5 41123-68-6
41123-69-7 41123-73-3 51109-26-3 51390-25-1
RL: BIOL (Biological study)
(acetylaminofluorene metabolism response to, carcinogenicity in relation to)
- IT 53-95-2
RL: FORM (Formation, nonpreparative)
(formation of, from acetylaminofluorene, alkyl disulfones effect on)
- IT 53-96-3
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(metabolism of, alkyl disulfones effect on, carcinogenicity in relation to)
- IT 9035-39-6 9035-51-2
RL: BIOL (Biological study)
(of liver microsome, alkyl disulfones effect on)
- IT 39227-09-3 41123-56-2 41123-68-6
41123-69-7 51390-25-1
RL: BIOL (Biological study)
(acetylaminofluorene metabolism response to, carcinogenicity in relation to)
- RN 39227-09-3 HCAPLUS
- CN Ethanol, 2,2'-[methylenebis(sulfonyl)]bis-, diacetate (9CI) (CA INDEX NAME)

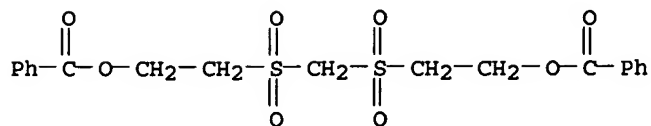


- RN 41123-56-2 HCAPLUS
- CN Propane, 2,2-bis(ethenylsulfonyl)- (9CI) (CA INDEX NAME)



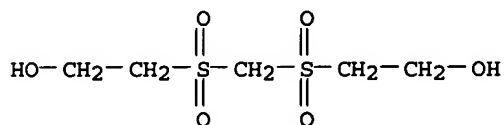
- RN 41123-68-6 HCAPLUS

CN Ethanol, 2,2'-[methylenebis(sulfonyl)]bis-, dibenzoate (9CI) (CA INDEX NAME)



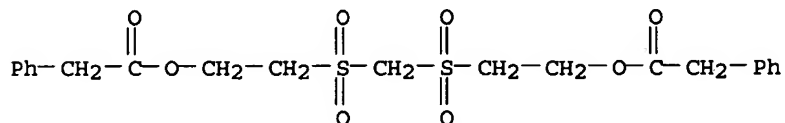
RN 41123-69-7 HCAPLUS

CN Ethanol, 2,2'-[methylenebis(sulfonyl)]bis- (9CI) (CA INDEX NAME)



RN 51390-25-1 HCAPLUS

CN Benzeneacetic acid, methylenebis(sulfonyl-2,1-ethanediyl) ester (9CI) (CA INDEX NAME)



L31 ANSWER 7 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1973:106131 HCAPLUS

DN 78:106131

ED Entered STN: 12 May 1984

TI Antineoplastic action of vinyl sulfones and their possible precursors

AU Pol'kina, R. I.; Remizov, A. L.; Petrov, A. S.

CS N. N. Petrov Res. Inst. Oncol., Leningrad, USSR

SO Voprosy Onkologii (1973), 19(1), 82-8

CODEN: VOONAW; ISSN: 0507-3758

DT Journal

LA Russian

CC 1-5 (Pharmacodynamics)

AB In vitro and in vivo (rats and mice) tests on sarcomas 180, 37, and LiO-1, ascitic lymphosarcoma, solid and ascitic Ehrlich tumors, and rat ovarian ascites tumor showed that vinyl sulfones have little value as antitumor agents. Acetoxyethylsulfones and other precursors which can be readily converted into vinyl sulfones by .beta.-eliminations showed cytotoxic action (similar to that of sarcocysine [531-76-0]) during direct contact with tumor cells. When administered i.p. in therapeutic doses (0.1-0.2 LD50) daily for 12 days these compds. had almost no general toxic action and no adverse effect on hemopoiesis. Bis(2-acetoxyethylsulfonyl)methane [39227-09-3] was the strongest antitumor agent of 16 vinylsulfone precursors studied.

ST vinyl sulfone antineoplastic action; acetoxy sulfonyl methane antineoplastic action; tumor growth vinyl sulfone precursor

IT Molecular structure-biological activity relationship
(neoplasm inhibiting, of vinyl sulfones)

IT Neoplasm inhibitors
(vinyl sulfones)

IT 531-76-0

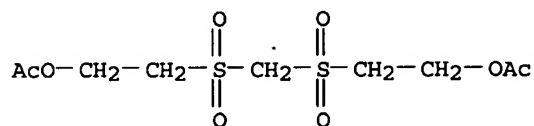
RL: PRP (Properties)

(cytotoxicity of, vinyl sulfone precursors in relation to)

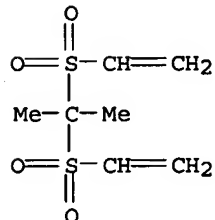
IT 3088-17-3 3944-87-4 7426-03-1 7484-34-6 39227-09-3
 39690-70-5 41123-56-2 41123-59-5 41123-60-8 41123-62-0
 41123-63-1 41123-64-2 41123-65-3 41123-66-4 41123-67-5
 41123-68-6 41123-69-7 41123-71-1 41123-73-3
 41187-15-9
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (neoplasm inhibitors)

IT 39227-09-3 41123-56-2 41123-64-2
 41123-68-6 41123-69-7
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
 (neoplasm inhibitors)

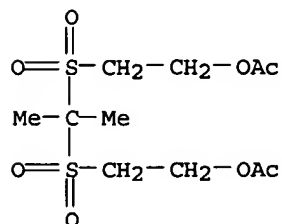
RN 39227-09-3 HCAPLUS
 CN Ethanol, 2,2'-[methylenebis(sulfonyl)]bis-, diacetate (9CI) (CA INDEX NAME)



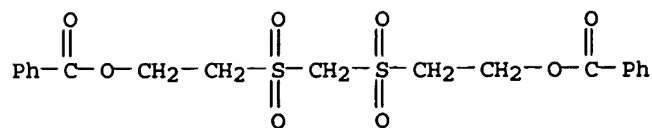
RN 41123-56-2 HCAPLUS
 CN Propane, 2,2-bis(ethenylsulfonyl)- (9CI) (CA INDEX NAME)



RN 41123-64-2 HCAPLUS
 CN Ethanol, 2,2'-[(1-methylethylidene)bis(sulfonyl)]bis-, diacetate (9CI)
 (CA INDEX NAME)

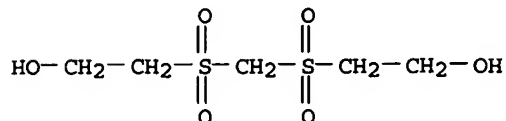


RN 41123-68-6 HCAPLUS
 CN Ethanol, 2,2'-[methylenebis(sulfonyl)]bis-, dibenzoate (9CI) (CA INDEX NAME)



RN 41123-69-7 HCAPLUS

CN Ethanol, 2,2'-[methylenebis(sulfonyl)]bis- (9CI) (CA INDEX NAME)



L31 ANSWER 8 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1970:425333 HCAPLUS

DN 73:25333

ED Entered STN: 12 May 1984

TI Double cycloaddition of disulfene and its related reactions

AU Hirai, Koji; Tokura, Niichiro

CS Fac. Eng., Osaka Univ., Osaka, Japan

SO Bulletin of the Chemical Society of Japan (1970), 43(2), 488-91

CODEN: BCSJA8; ISSN: 0009-2673

DT Journal

LA English

CC 28 (Heterocyclic Compounds (More Than One Hetero Atom))

GI For diagram(s), see printed CA Issue.

AB The reactions of methanedisulfonyl chloride with ketene diethyl acetal, 1-morpholinocyclohexene, and 1-piperidinopropene in the presence of Et3N were studied. The products obtained were the double cycloadduct, spiro bithietane tetroxide (I), and the substitution products II and III, resp. These findings suggest that Et3N dehydrochlorinates methanedisulfonyl chloride to produce disulfene. However, as yet we cannot say whether the formation of disulfene is the one-step dehydrochlorination mechanism (ClSO2CH2SO2Cl .fwdarw. O2S:C:SO2) or the two-step one (ClSO2CH2SO2Cl .fwdarw. ClSO2CH:SO2 .fwdarw. O2S:C:SO2).

ST disulfene double cycloaddns; double cycloaddns disulfene; cycloaddns double disulfene; addns cyclo double disulfene; spiro bithietane tetroxides; bithietane spiro tetroxides; tetroxides spiro bithietane; ketene diethylacetal disulfene addn; morpholinocyclohexene disulfene addn; cyclohexene morpholino disulfene addn; piperidinopropene disulfene addn; propene piperidino disulfene addn

IT Addition reactions
(cyclo-, of disulfene)

IT Nomenclature, new synthetic compounds
(disulfene)

IT 27230-22-4

RL: RCT (Reactant); RACT (Reactant or reagent)

(as intermediate in methanedisulfonyl chloride reactions)

IT 27230-16-6P 27230-17-7P 27230-18-8P 27230-19-9P

27230-20-2P 27230-21-3P

RL: SPN (Synthetic preparation); PREP (Preparation)

(preparation of)

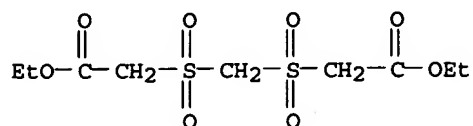
IT 27230-18-8P 27230-21-3P

RL: SPN (Synthetic preparation); PREP (Preparation)

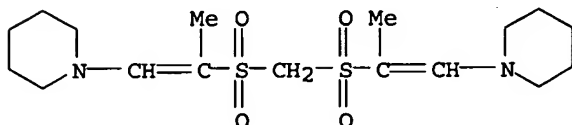
(preparation of)

RN 27230-18-8 HCAPLUS

CN Acetic acid, 2,2'-[methylenebis(sulfonyl)]bis-, diethyl ester (9CI) (CA INDEX NAME)



RN 27230-21-3 HCAPLUS
 CN Piperidine, 1,1'-[methylenebis[sulfonyl(2-methylvinylene)]]di- (8CI) (CA INDEX NAME)



L31 ANSWER 9 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1966:76255 HCAPLUS

DN 64:76255

OREF 64:14319b-d

ED Entered STN: 22 Apr 2001

TI Triazinylamino dyes containing a quaternary ammonium group

IN Gamlen, George A.; Morris, Cyril; Scott, Donald F.; Twitchett, Harry J.

PA Imperial Chemical Industries Ltd.

SO 5 pp.; Addn. to Brit. 937,182 (CA 60, 4282g)

DT Patent

LA Unavailable

IC C09B

CC 46 (Dyes)

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 999233		19650721	GB	19630218

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
GB 999233	IC	C09B

AB H2O-soluble azo, anthraquinone, and phthalocyanine dyes, which are substituted by a 4-chloro-s-triazin-2-ylamino group, are quaternized with 1-aza-3-methyl-4,6,10-trioxadamantane (I) in aqueous medium at 40-50.degree.. The products dye cellulose textile materials wetfast shades when used in conjunction with an acid-binding agent. For example, a mixture of the tris-Na salt of 1-(4-chloro-6-anilino-s-triazin-2-yl-amino)-7-(.omicron.-sulphophenylazo)-8-naphthol-3,6-disulfonic acid (II) 77.4, I 31.4, and H2O 1500 parts was stirred at 40-50.degree. for 3 hrs., cooled to 15.degree., and poured into 2000 parts acetone to give a powder which dyes cellulose textile materials bluish red shades. The dyeings obtained are tinctorially stronger than those when II itself is used. Similarly, the tri-Na salt of 1-amino-4-[3-[4-chloro-6-(m-sulfoanilino)-s-triazin-2-ylamino]-4-sulfoanilino] anthraquinone-2-sulfonic acid and Cu phthalocyanine-3-sulfonamide-3-sulfon-N-[3-[4-chloro-6-(.beta.-hydroxyethylthio)-s-triazin-2-yl-amino]phenyl]amide-3-sulfonic acid (Brit. 952,606, CA 61, 4525a) were treated with I to yield blue and greenish blue shades, resp.

IT Dyes

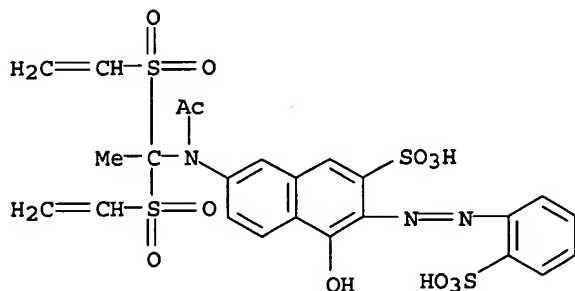
(4,6,10-trioxo-1-azoniaadamantane chloride, 3-methyl-1-s-triazin-2-yl derivs., cellulose)

IT Dyes

(azo, bis(vinylsulfonyl)-containing)

IT 3-Phthalocyaninesulfonio acid, [[m-[[4-[(2-hydroxyethyl)thio]-6-(3-methyl-4,6,10-trioxo-1-azoniaadamant-1-yl)-s-triazin-2-

- yl]amino]phenyl)sulfamoyl)sulfamoyl-, chloride, Cu complex
- 4,6,10-Trioxa-1-azoniaadamantane compounds, 1-[4-[5-[(4-amino-3-sulfo-1-anthraquinonyl)amino]-2-sulfoanilino]-6-(m-sulfoanilino)-s-triazin-2-yl]-3-methyl-, chloride, tri-Na salt
- 4,6,10-Trioxa-1-azoniaadamantane compounds, 1-[4-anilino-6-[[8-hydroxy-3,6-disulfo-7-[(o-sulfophenyl)azo]-1-naphthyl]amino]-s-triazin-2-yl]-3-methyl-, chloride, tri-Na salt
- Copper compounds, [hydrogen[[m-[[4-[(2-hydroxyethyl)thio]-6-(3-methyl-4,6,10-trioxa-1-azoniaadamantan-1-yl)-s-triazin-2-yl]amino]phenyl)sulfamoyl)sulfamoyl-3-phthalocyaninesulfonato]copper chloride
- IT 4,6,10-Trioxa-1-azoniaadamantane compounds
(derivs., as dyes)
- IT 7585-18-4, 2-Naphthalenesulfonic acid, 7-[N-[1,1-bis(vinylsulfonyl)ethyl]acetamido]-4-hydroxy-3-[(o-sulfophenyl)azo]-
101896-38-2, 2-Naphthalenesulfonic acid, 7-[N-[1,1-bis[(2-hydroxyethyl)sulfonyl]ethyl]acetamido]-4-hydroxy-3-[(o-sulfophenyl)azo]-, bis(hydrogen sulfate)
(preparation of)
- IT 7585-18-4, 2-Naphthalenesulfonic acid, 7-[N-[1,1-bis(vinylsulfonyl)ethyl]acetamido]-4-hydroxy-3-[(o-sulfophenyl)azo]-
101896-38-2, 2-Naphthalenesulfonic acid, 7-[N-[1,1-bis[(2-hydroxyethyl)sulfonyl]ethyl]acetamido]-4-hydroxy-3-[(o-sulfophenyl)azo]-, bis(hydrogen sulfate)
(preparation of)
- RN 7585-18-4 HCAPLUS
- CN 2-Naphthalenesulfonic acid, 7-[N-[1,1-bis(vinylsulfonyl)ethyl]acetamido]-4-hydroxy-3-[(o-sulfophenyl)azo]- (7CI, 8CI) (CA INDEX NAME)

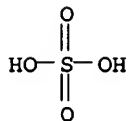


- RN 101896-38-2 HCAPLUS
- CN 2-Naphthalenesulfonic acid, 7-[N-[1,1-bis[(2-hydroxyethyl)sulfonyl]ethyl]acetamido]-4-hydroxy-3-[(o-sulfophenyl)azo]-, bis(hydrogen sulfate) (7CI)
(CA INDEX NAME)

CM 1

CRN 7664-93-9

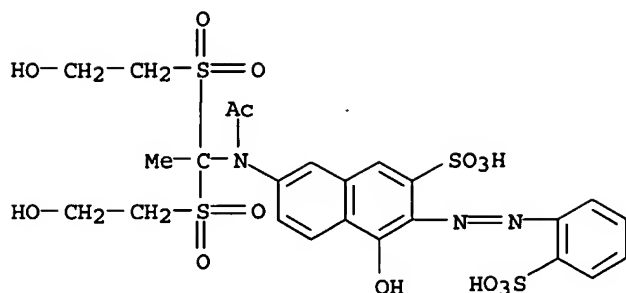
CMF H2 O4 S



CM 2

CRN 5517-23-7

CMF C24 H27 N3 O14 S4



L31 ANSWER 10 OF 10 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1960:1663 HCAPLUS

DN 54:1663

OREF 54:277a-h

ED Entered STN: 22 Apr 2001

TI Synthesis and pharmacological action of substituted sulfonals

AU Buchi, J.; Fueg, H. R.; Aebi, A.

CS Eidg. Tech. Hochschule, Zurich, Switz.

SO Helvetica Chimica Acta (1959), 42, 1368-74

CODEN: HCACAV; ISSN: 0018-019X

DT Journal

LA German

CC 10B (Organic Chemistry: Aliphatic Compounds)

OS CASREACT 54:1663

GI For diagram(s), see printed CA Issue.

AB A series of hydroxy-, alkoxy-, and dialkylamino-substituted sulfonals were prepared and pharmacologically tested. None possessed spasmodic or hypnotic properties, but two, bis(.beta.-piperidylethylsulfonyl)dimethylmethane (I) and bis(ethylenesulfonyl)dimethylmethane (II), possessed analgesic properties. 2-Chloroethyl mercaptan was condensed with Me2CO below 20.degree. to give the dithioether, of which 48 g. in 1 l. benzene was oxidized with 110 g. KMnO4 in 2.5 l. H2O containing 25 g. concentrated H2SO4 at 25-30.degree.; after 2 hrs. the aqueous phase was separated and washed with 1 l. benzene in small portions, the combined benzene solns. washed with 0.5N NaOH and H2O, and distilled to give 81% bis(.beta.-chloroethylsulfonyl)dimethylmethane (III), m. 77-8.degree. (EtOH), m. 69.5-70.5.degree. (Et2O-petr. ether). III (10 g.) in 6 g. pyridine was warmed to 80.degree., a few drops H2O added, and after HCl evolution began cooled, H2O added occasionally to prevent crystallization of the salt, and finally 100 ml. H2O added, and 2N Na2CO3 added to give 7 g. II, m. 123.degree. (EtOH). III (2 g.) and 1.5 g. K phthalimide in 20 ml. dimethylformamide was refluxed 2 hrs. to give 57% bis(.beta.-phthalimidoethylsulfonyl)dimethylmethane (IV), m. 218-19.degree., m. 221-35.degree. (dioxane-Et2O). IV (1 g.) was hydrolyzed with 10 ml. 36% HCl in a sealed tube at 150-60.degree. 24 hrs., cooled, made alkaline with 2N NaOH, and extracted with Et2O to give 60% bis(.beta.-aminoethylsulfonyl)dimethylmethane, m. 84-5.degree. (petr. ether containing a trace of absolute EtOH); hydrochloride m. 233-4.degree. (EtOH). III (4 g.) in 1:2 Et2O-EtOH at -15.degree. was treated portionwise with 10 g. Me2NH, slowly warmed to 60.degree., the solvents distilled, the residue treated with 2N NaOH, heated to 50.degree. in vacuo 1 hr., the residue dissolved in 2N HCl-CHCl3, the aqueous phase separated, and neutralized with NaOH to give 82% bis(.beta.-dimethylaminoethylsulfonyl)dimethylmethane, m. 73.degree. (petr. ether); hydrochloride m. 213-14.degree.. The following were similarly prepared: bis(.beta.-diethylaminoethylsulfonyl)dimethylmethane, m. about 0.degree. (hydrochloride m. 192-4.degree.); bis(.beta.-dipropylaminoethylsulfonyl)dimethylmethane, oil (hydrochloride m. 177-8.degree.); bis(.beta.-diisopropylaminoethylsulfonyl)dimethylmethane; bis(.beta.-

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dibutylaminoethylsulfonyl)dimethylmethane, oil (hydrochloride m. 159-61.degree.); bis(.beta.-diisobutylaminoethylsulfonyl)dimethylmethane, m. 69-70.degree. (hydrochloride m. 177-9.degree.); bis(.beta.-sec-butylaminoethylsulfonyl)dimethylmethane; bis(.beta.-diisopentylaminoethylsulfonyl)dimethylmethane, oil (hydrochloride m. 118-19.degree.); bis(.beta.-pyrrolidylethylsulfonyl)dimethylmethane, m. 93-3.5.degree. (hydrochloride m. 212-14.degree.); I, m. 74-6.degree. (hydrochloride m. 212-14.degree.); bis[.beta.-(1-methylpiperidyl)ethylsulfonyl]dimethylmethane; bis(.beta.-morpholinoethylsulfonyl)dimethylmethane, m. 186.degree. (hydrochloride m. 213-14.degree.). II (4 g.) was heated to 60-80.degree. with 20 ml. saturated Ba(OH)₂ 30 min., the solution cooled, neutralized with 2N NaOH, evaporated in vacuo, and the residue extracted with hot CHCl₃ to give 86% bis(.beta.-hydroxyethylsulfonyl)dimethylmethane, m. 70-2.degree. (CHCl₃). II (2 g.) in 50 ml. MeOH was treated with 0.5 g. Na in 50 ml. MeOH 48 hrs. at room temperature, H₂O added, the MeOH distilled, and the solution extracted with

CHCl₃

to give 97% bis(.beta.-methoxyethylsulfonyl)dimethylmethane, m. 81-2.degree. (MeOH). II (5 g.) in 500 ml. benzene was shaken with 1.6 g. BuNH₂ in 50 ml. benzene 24 hrs. at room temperature, the solution neutralized with 2N NaOH, and the alkaline solution extracted with Et₂O to give 42% Me₂C.SO₂.CH₂.CH₂.NBu.CH₂.CH₂.SO₂; hydrochloride m. 142-4.degree. (EtOH).

IT Sulfones

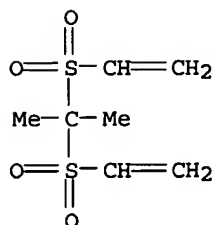
IT Analgesics

(sulfones as)

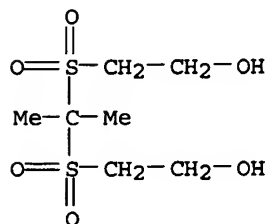
IT 4H-1,3,6-Dithiazocine, 6-butyltetrahydro-2,2-dimethyl-, hydrochloride
 5,7-Dithia-2,10-diazaundecane, 2,6,6,10-tetramethyl-, 5,5,7,7-tetraoxide
 5,7-Dithia-2,10-diazaundecane, 2,6,6,10-tetramethyl-, dihydrochloride
 6,8-Dithia-3,11-diazatridecane, 3,11-diethyl-7,7-dimethyl-,
 6,6,8,8-tetraoxide
 6,8-Dithia-3,11-diazatridecane, 3,11-diethyl-7,7-dimethyl-, hydrochloride
 6,8-Dithia-3,11-diazatridecane, 3,11-diisopropyl-2,7,7,12-tetramethyl-,
 6,6,8,8-tetraoxide
 7,9-Dithia-4,12-diazapentadecane, 4,12-di-sec-butyl-3,8,8,13-tetramethyl-,
 7,7,9,9-tetraoxide
 7,9-Dithia-4,12-diazapentadecane, 4,12-diisobutyl-2,8,8,14-tetramethyl-,
 7,7,9,9-tetraoxide
 7,9-Dithia-4,12-diazapentadecane, 4,12-diisobutyl-2,8,8,14-tetramethyl-,
 hydrochloride
 7,9-Dithia-4,12-diazapentadecane, 8,8-dimethyl-4,12-dipropyl-,
 7,7,9,9-tetraoxide
 7,9-Dithia-4,12-diazapentadecane, 8,8-dimethyl-4,12-dipropyl-,
 hydrochloride
 8,10-Dithia-5,13-diazaheptadecane, 5,13-dibutyl-9,9-dimethyl-,
 8,8,10,10-tetraoxide
 8,10-Dithia-5,13-diazaheptadecane, 5,13-dibutyl-9,9-dimethyl-,
 hydrochloride
 8,10-Dithia-5,13-diazaheptadecane, 5,13-diisopentyl-2,9,9,16-tetramethyl-,
 8,8,10,10-tetraoxide
 8,10-Dithia-5,13-diazaheptadecane, 5,13-diisopentyl-2,9,9,16-tetramethyl-,
 hydrochloride

IT 41123-56-2, Propane, 2,2-bis(vinylsulfonyl)- 41123-60-8,
 Propane, 2,2-bis(2-chloroethylsulfonyl)- 98433-55-7, Ethanol,
 2,2'-(isopropylidenedisulfonyl)di- 98958-11-3, Propane,
 2,2-bis(2-methoxyethylsulfonyl)- 108754-14-9, 4H-1,3,6-Dithiazocine,
 6-butyltetrahydro-2,2-dimethyl-, 1,1,3,3-tetraoxide 109453-68-1,
 Diethylamine, N,N'-[isopropylidenebis(sulfonylethylene)]bis[1,1'-dimethyl-
 109645-72-9, Morpholine, 4,4'-[isopropylidenebis(sulfonylethylene)]di-
 109645-73-0, Morpholine, 4,4'-[isopropylidenebis(sulfonylethylene)]di-,
 hydrochloride 109647-60-1, 2-Pipecoline, 1,1'-
 [isopropylidenebis(sulfonylethylene)]di- 109649-20-9, Dipropylamine,
 N,N'-[isopropylidenebis(sulfonylethylene)]bis-, hydrochloride
 109649-21-0, Dipropylamine, N,N'-[isopropylidenebis(sulfonylethylene)]bis-
 109725-70-4, Pyrrolidine, 1,1'-[isopropylidenebis(sulfonylethylene)]di-,
 hydrochloride 109726-25-2, Pyrrolidine, 1,1'-
 [isopropylidenebis(sulfonylethylene)]di- 110553-53-2, Ethylamine,

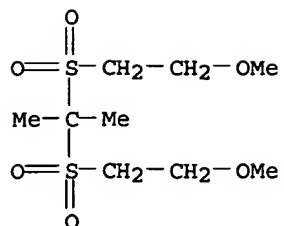
2,2'-(isopropylidenedisulfonyl)bis[N,N-dimethyl-, dihydrochloride
 110553-54-3, Ethylamine, 2,2'-(isopropylidenedisulfonyl)bis[N,N-dimethyl-
 111091-57-7, Piperidine, 1,1'-[isopropylidenebis(sulfonylethylene)]di-,
 hydrochloride 114163-21-2, Dibutylamine, N,N'-
 [isopropylidenebis(sulfonylethylene)]bis-, hydrochloride 114163-22-3,
 Dibutylamine, N,N'-[isopropylidenebis(sulfonylethylene)]bis-
 114327-93-4, Triethylamine, 2,2'''-(isopropylidenedisulfonyl)bis-
 114327-94-5, Triethylamine, 2,2'''-(isopropylidenedisulfonyl)bis-,
 hydrochloride 114890-10-7, Dipropylamine, N,N'-
 [isopropylidenebis(sulfonylethylene)]bis[1,1'-dimethyl- 114890-11-8,
 Dipropylamine, N,N'-[isopropylidenebis(sulfonylethylene)]bis[2,2'-dimethyl-
 , hydrochloride 114890-12-9, Dipropylamine, N,N'-
 [isopropylidenebis(sulfonylethylene)]bis[2,2'-dimethyl- 118835-71-5,
 Ethylamine, 2,2'-(isopropylidenedisulfonyl)bis-, hydrochloride
 119077-65-5, Phthalimide, N,N'-[isopropylidenebis(sulfonylethylene)]di-
 122389-80-4, Dibutylamine, N,N'-[isopropylidenebis(sulfonylethylene)]bis[3
 ,3'-dimethyl- 124104-77-4, Dibutylamine, N,N'-
 [isopropylidenebis(sulfonylethylene)]bis[3,3'-dimethyl-, hydrochloride
 (preparation of)
 IT 41123-56-2, Propane, 2,2-bis(vinylsulfonyl)- 98433-55-7,
 Ethanol, 2,2'-(isopropylidenedisulfonyl)di- 98958-11-3, Propane,
 2,2-bis(2-methoxyethylsulfonyl)-
 (preparation of)
 RN 41123-56-2 HCAPLUS
 CN Propane, 2,2-bis(ethenylsulfonyl)- (9CI) (CA INDEX NAME)



RN 98433-55-7 HCAPLUS
 CN Ethanol, 2,2'-(isopropylidenedisulfonyl)di- (6CI) (CA INDEX NAME)



RN 98958-11-3 HCAPLUS
 CN Propane, 2,2-bis(2-methoxyethylsulfonyl)- (6CI) (CA INDEX NAME)



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FILE 'HOME' ENTERED AT 14:23:35 ON 13 JAN 2005

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COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION
0.21	580.13

FULL ESTIMATED COST

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE	TOTAL
ENTRY	SESSION
0.00	-7.30

CA SUBSCRIBER PRICE

SESSION WILL BE HELD FOR 60 MINUTES

STN INTERNATIONAL SESSION SUSPENDED AT 14:23:37 ON 13 JAN 2005